Measuring social processes through surveys: inhabitants versus key informants

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Abstract

The role of community (dis)organizational processes is a major issue in contemporary criminology. As a consequence, researchers have been increasingly eager to measure community-level social mechanisms such as social trust and disorder. However, community inhabitants are predominantly used to measure community (dis)organizational processes. This approach requires large numbers of respondents to generate reliable and valid measures of social trust and disorder. In this article, the use of expert key informants is discussed as an alternative method of measuring community processes. Our findings suggest that key informants can provide reliable and valid measures of social cohesion and disorder on two rather small units of analysis.

The need to measure social processes

Community research on crime has continuously paid attention to the role of community (dis)organizational processes. From a theoretical point of view these processes refer to the social organization of a community, rather then the organization of individuals embedded in those communities. Social cohesion and trust, physical and social incivilities have developed into major social processes that are relevant for the study of urban crime. Social disorganization theory (Shaw and McKay, 1942), the "Broken-Windows" theory (Kelling and Coles, 1996) and Sampson's "Collective Efficacy" theory (Sampson, Raudenbush and Earls, 1997) have pointed to the importance of studying community social structure, especially disadvantage (poverty), social organizational processes (social trust) and disorganizational processes (disorder) as community characteristics. Community organizational processes such as social trust are considered to be major intermediate mechanisms explaining why community structure is related to crime (Hedström, 2005).

Community research often interprets communities to mean neighbourhoods, i.e. rather small ecological units of analysis. Often, small areas are perceived as "neighbourhoods" when they are geographically restricted and visibly separable from other areas (e.g. because of natural borders such as woods and rivers) or due to physical structures in the environment, such as roads and bridges (Kaal and Vanderveen, 2007). The debate regarding the size of areas is an old one that still is not resolved. Scholars seem to agree that small units are better suited to the study of local processes than large and heterogeneous areas. Size matters because previous studies have shown that results depend on the operational measure of communities (Oberwittler and Wikström, 2008). Often the researcher needs to choose between a restricted set of options such as street-blocks, census tracts, combined census tracts or postal code areas.

This article highlights the advantages of using key informants as a primary source of measuring social trust and disorder at two different but small levels of analysis. This study therefore combines insights gained from two Belgian local area studies of social trust and disorder (Hardyns, 2008; Pauwels, 2006). The unique contribution of this article to the measurement of social processes at local levels is that it generates empirical evidence of the potential of the technique of "key informant analysis" as an ecological reliable and valid tool in quantitative community research at two levels of analysis. Our findings are based on an analysis of the ecological reliability and validity of *social trust* and *disorder,* two key concepts in ecological studies of crime, measured at the neighbourhood level and the postal code level (U.S.: zip code level).[1] We argue that the knowledge of well-chosen key

informants about the social climate of an area is superior to the knowledge of the average inhabitant of that area. Therefore, fewer key informants than inhabitants are needed to gain reliable and valid information on community disorganizational processes, independent of the size of a local area. The article uses a multi-method approach in the study of crime in small ecological settings.

Community (dis)organizational processes and key informants

The most commonly used method to capture social processes is the survey of inhabitants of ecological settings. However, one can argue that inhabitants do not necessarily need to be aware of social situations in their residential areas, as many employees, students, etc. commute and therefore do not have a clear idea of what is really going on in their neighbourhoods. Using only residents as subjects may thus lead to the introduction of measurement error and bias. It is important, therefore, to develop alternative ways of measuring social processes. Oberwittler and Wikström (2008) recently demonstrated that smaller units of analysis generate more reliable ecological measures. Earlier, Raudenbush and Sampson (1999) suggested that 20 to 30 respondents (inhabitants) can be sufficient to reliably measure neighbourhood social processes. They also found that more than 40 respondents provides little incremental improvement of ecological reliability. Raudenbush and Sampson used combined census tracts as their operational measure of local communities. It is therefore not possible to generalize their findings to other units of analysis that also refer to small areas. One can assume that the higher the level of analysis, the more heterogeneous the area. It is also reasonable to assume that more inhabitants are necessary to obtain reliable measures of community processes at the higher level (e.g. postal code areas). However, survey costs may rise dramatically when the unit of analysis is situated at a higher level, such as the postal code level, since postal code areas consist of several census tracts.

One interesting and useful alternative to a survey of inhabitants is the use of systematic social observation, a technique that has successfully been used when trying to measure disorder (social and physical disorder - see Raudenbush and Sampson, 1999). Systematic social observation avoids bias in respondents' lack of knowledge on disorder and directly measures visible aspects of community (dis)organizational processes, such as public alcohol consumption on streets, the presence of litter, graffiti, etc. The high cost of this method is one reason why it has never (as far as we know) been used within European empirical research on

area variation in crime and disorder. The method of systematic social observation may be accurate when studying disorder, but it may not capture social cohesive processes.

One less recognized method to measure social processes in local areas such as neighbourhoods is Key Informant Analysis. This method has been used in Swedish neighbourhood research (Tiby and Olsson, 1997). Recently, Pauwels (2006) demonstrated that the technique of *'key informant analysis'* could be used to create ecologically reliable and valid measures of neighbourhood (dis)organizational processes, referring to social cohesion/social trust and disorder. One major question that arises then is what kinds of people should be considered as the "optimal" key informants?

Key informants are defined as persons that have a "*privileged*" position to provide detailed information on local area processes. Thus, in studies of community (dis)organizational processes, key informants are expected to have above-average knowledge of issues such as social trust and disorder. Therefore, fewer informants are necessary to get reliable measures of ecological processes. Some people can, through their jobs, provide more meaningful and less biased information on matters such as social trust and disorder. One major task is to select such key informants.

Key informants that meet this criterion of above-average knowledge of local area processes were previously identified in jobs such as social work, local police, local shops (e.g. groceries, newspaper shops, etc.), local pubs and local policy work. These key informants can be given self-administered questionnaires, rather similar to conducting a survey of neighbourhood inhabitants. One major difference between the use of surveys of inhabitants and profession-based key informants is the selection procedure employed. While random selection is the criterion used in resident surveys, professional key informants are chosen on the basis of their knowledge about community (dis)organizational processes. Key informants are thus field experts. The point of departure is that the privileged witness represents an important additional information to the more established resident surveys. The importance of this principle has been underscored by Campbell (1955: 340) who stated *"if the use of informants as a social science research tool is to be developed, it seems likely that principles of optimal selection will have to be developed".* The principle of optimal selection should ensure that the knowledge of professional key informants exceeds the knowledge of ordinary residents.

The advantage of using key informants is strongly dependent on the quality of the information provided by these individuals. This is especially important when quantitative data are to be provided by the informants (Kendall and Lazarsfeld, 1950). Sudman and Bradburn

(1974) have identified an important issue concerning the reliability and validity of the data thus obtained: measurement error increases when informants have only vague knowledge of the topics being explored. A thorough selection is thus necessary when using the technique of key informant analysis. Results are based on the informant's ability to observe and perceive the underlying social processes. In this study we therefore explicitly posed an initial question to these respondents: "do they consider themselves able to answer rating scales on social trust and disorder?" There is little reason to believe that key informants should be less emotional then local residents about social trust and disorder, but in spite of this they should be well informed because of their function. The principle of self-selection was hypothesized to be an important filter question to rule out bias. We also made sure that within every community, a very heterogeneous set of informants was selected (see Table 2).

Ecological reliability and validity of survey based measurement instruments

Measurement can be described as the systematic assignment of numbers to variables to represent features of persons, objects or events (Vandenberg and Lance, 2000). In ecological research one aims at measuring characteristics of ecological settings. Ecometrics is *the art of measuring* characteristics of ecological units (Raudenbush and Sampson, 1999).[2] Ecological settings involve street-blocks, neighbourhoods, postal code areas or even units at a higher level of analysis. One major issue in ecological research is the question of how close we can get to the measurement of characteristics of ecological units, rather then the measurement of characteristics of respondents answering observational questions on characteristics of ecological units. After all, individual respondents are providing data to assess characteristics measured at higher levels of aggregation. The perception of individuals determines the ecological survey-based measure. To what extent is it possible to express social processes such as social trust and disorder in numbers?

It is clear that a decisive criterion is needed to evaluate the quality of measures of sociological properties of geographical areas. So far, this has been done in the psychometrical tradition by (a) using reliable and valid measures at the respondent's level and by (b) using multilevel modelling to evaluate the ecological reliability of measurement scales created at the individual level (Raudenbush and Sampson, 1999). We highlight the difference between psychometric and ecological reliability. A *reliable psychometric scale consists of a set of items that meet the demands of internal consistency*. This can be checked by factor analysis of

the observational questions and by computing *Cronbach's alpha*, one of the most well known estimators of scale reliability (Tacq, 1992). To assess ecological reliability, Raudenbush and Sampson introduced the *lambda parameter* (Raudenbush and Sampson, 1999). Technical information on this parameter can be found in Appendix A.

A reliable measure is not necessary a valid measure; accordingly it is necessary to test the ecological validity of area level aggregates. Validity refers to the absence of systematic bias. Thus, the measure should measure what it claims to measure. We pay attention to the construct validity of measures (Billiet and Waege, 2001; Waege, 1997). However, the principle of construct validity seems so simple that it can be misguiding. Construct validity is obtained when an ecological measure correlates as highly as would be expected based on theoretical expectations. Within criminological research the validity of a measure is often demonstrated by looking at correlations between constructs, thus construct validity often is limited to correlational validity (Meng, Rosenthal and Rubin, 1992) or convergent validity. In this contribution the ecological reliability and validity of measures of social trust and disorder using the key informant analysis technique will be evaluated.

Data and methodology

The usefulness of the key informant technique was explored in two different urban settings, Antwerp and Ghent. Both studies used different operational measures of local communities. In the Antwerp survey, communities were defined as census tract-clusters. The survey was carried out in all 42 official neighbourhood clusters of the city of Antwerp. Antwerp is the second largest city of Belgium with a population of approximately 470,000 inhabitants and a surface area of 205 km². In the Ghent survey, communities were defined as postal code areas. The survey was carried out in 26 official postal code areas; 14 of these postal code areas belong to the larger city of Ghent (Ghent is the fifth largest city of Belgium), while 12 postal code areas surround Ghent. Taken together, these 26 postal code areas cover 598 km² and have a population of approximately 410,000 inhabitants. Differences between the two units of analysis can be seen in Table 1.

TABLE 1

Both surveys used different units of analysis, and we therefore adapted the number of key informants to the area. In total, 779 key informants were interviewed using face-to-face interviews and self-administrated questionnaires in the Ghent survey and 321 in the Antwerp survey.[3] The small number of 26 postal code areas and 42 combined census tracts is insufficient to conduct multivariate analyses on the relationships between community characteristics, but this was not the goal of this research. This contribution is restricted to a test of the ecological reliability and validity of constructs obtained through a number of well-informed key informants. The key informants were selected on the criterion of self selection. In addition, the interviewers were instructed to maximize the diversity of the sample. Table 2 presents descriptive statistics relating to the demographic and professional background characteristics of the informants.

TABLE 2

Measurement of constructs

The measurement of social processes as key mechanisms in understanding the relationship between social structure and crime is the core goal of this article. We therefore pay careful attention to the measurement of these constructs. Social cohesion is such a broad concept that it is hard to find agreement on how it should be measured (Peper et al., 1999). Collective efficacy is increasingly of interest to scholars in Europe (e.g. Flap and Völker, 2005; Oberwittler, 2001; Friedrichs and Oberwittler, 2007), so an evaluation of measurement issues is of primordial interest. Collective efficacy has been defined as *"social cohesion among neighbors combined with their willingness to intervene on behalf of the common good"* (Sampson, Raudenbush and Earls, 1997: 918). Social cohesion and mutual trust among members of a community *('social trust'*) are an absolute condition to foster the willingness to intervene in the common interest of a community (*'informal social control'*). In this study, the social trust component of the collective efficacy concept was measured. To measure *'social trust'* in the Ghent survey, respondents were asked to what extent they agreed with following items: *"people around here are willing to help their neighbors", "this is a close-knit neighborhood", "people in this neighborhood can be trusted", "people in this neighborhood generally don't get along with each other" and "people in this neighborhood do not share the same values".*[4] Cronbach's alpha is .76.[5] In the Antwerp survey social trust was measured by

asking respondents to what extent they agreed with following items: *"it is easy to get in contact with the inhabitants of this neighborhood", "in general, the inhabitants of this neighborhood are very friendly" and "the majority of the inhabitants of this neighborhood are prepared to help if you ask them".* Cronbach's alpha is .73.

Disorder is, like social cohesion, a rather ambiguous concept. Usually both physical (urban decay) and social nuisances (truants on the streets, public use of drugs and alcohol, etc.) are measured. Following Pauwels' (2006) neighbourhood measures of disorder and neighbourhood crime problems, key informants in the Ghent survey were asked how many times they observed *"neighbourhood quarrels", "tensions between adolescents and adults", "adolescents hanging around on street corners", "a group of adolescents harassing persons to obtain money or goods", "litter on the streets", "graffiti on buildings or public property", "homeless people in the streets", "men drinking beer in public", "persons selling drugs on the streets", "somebody trying to steal something in a local shop", "somebody being threatened on the streets" and "fights between adolescents because one adolescent was challenged".* Cronbach's alpha is .88 in the Ghent survey. In the Antwerp survey, disorder was measured by asking respondents how many times they observed *"homeless people in the streets", "drunks in the streets", "visible signs of vandalism (e.g. broken windows, damaged public phone cells, graffiti on walls, ...)", "people complaining about noise pollution", "litter on the streets" and "people being harassed on the streets"* in their neighbourhood. Cronbach's alpha is .78 in the Antwerp survey.

To assess the ecological validity of social cohesion/trust and disorder, *official statistics (census data)* are used. We assess the ecological validity by correlating the ecological measures with population density, the degree of one single-person households and the unemployment rate. These data refer to the actual situation at the aggregate level and apply to the year 2006 in the Ghent study and 2003 in the Antwerp study.[6]

Ecological reliability of (dis)organizational processes

To assess ecological reliability, lambda values and ICC's were calculated using random intercept models. To evaluate the ecological, neighbourhood-level reliability of the scales, the first step within multilevel modelling is to compute ICC's in a so-called 'empty model' without any individual-level predictors, comparable to variance decomposition in a conventional analysis of variance. As reported in Table 3, about 12% of the variance of social

trust is due to differences between output areas, both in the Antwerp (neighbourhood clusters) and in the Ghent study (postal code areas). Weighted by the number of respondents, this ICC translates to lambdas for social trust of respectively .50 and .80. Whereas the result for the latter scale is very good, the value of the latter is at best satisfactory. We can conclude that the social trust scale used in the Ghent study and extracted from the work of Sampson and his colleagues (1997) leads to a much more reliable measurement at the postal code area level than the social trust scale used in the Antwerp study at the neighbourhood cluster level. Furthermore, 38% and 34% respectively of the variance of disorder is due to differences between the neighbourhood clusters in the Antwerp study and postal code areas in the Ghent study. Weighted by the number of respondents, these percentages translate to lambdas for disorder of, respectively, .81 and .94. All parameters in this study significantly differ from zero. Both lambdas point to a high level of reliability at the ecological level of analysis. Once again the lambda for the study at the postal code area level exceeds the lambda for the neighbourhood cluster level. It is striking that respondents seem more in agreement in giving their perception of disorder in their geographical area, than assessing the impression of social trust.

These results, obtained by the key informant technique, are highly similar to the reliability values obtained by Raudenbush and Sampson (1999), using representative samples of neighbourhood inhabitants in Chicago. The ecological reliability of resident-based survey measures has already been demonstrated by Oberwittler (2001), and Oberwittler and Wikström (2008). The findings of this study corroborate earlier findings on the potential of using key informants when measuring (dis)organizational processes. The method seems to produce reliable measures in both ecological settings (neighbourhood clusters and postal code areas). However, the lower lambda value of social trust suggests that differences between respondents are somewhat higher than differences between ecological settings. It seems that it is easier to measure the consequences of lack of cohesion than social trust, at least using the key informant technique. Previous studies (Raudenbush and Sampson, 1999; Oberwittler, 2001) have found that organizational processes (social trust/cohesion) are measured less reliably than disorganizational processes (disorder). Thus, the use of key informants does not seem to solve that problem.

TABLE 3

Ecological construct validity of (dis)organizational processes

Let us first of all look at the construct validity of the aforementioned social (dis)organizational processes. Social trust, as a dimension of the concept of social cohesion, refers to informal control in geographical areas. Disorder is commonly believed to be a negative outcome of lack of social control. We should therefore expect strong negative associations between these measures. The ecological level measures are simply the aggregates of the individual level measures (by using mean scores), and represent sociometric characteristics of neighbourhood clusters and postal code areas rather than psychometric characteristics of individuals. After calculating the ecological level correlations (Pearson's r) between the constructs, it can be concluded that the ecological construct validity is very high. The correlation between social trust and disorder is highly negative both in the Antwerp study (-.48) and in the Ghent study (-.76), but is remarkably higher in the latter.

We now turn to the ecological correlations between (dis)organizational processes and structural characteristics. These characteristics are considered to be major structural causes of area concentrations of crime and disorder. Selected structural characteristics are: population density, single-person households and unemployment rate. Only some analyses with unemployment rates in the Ghent study are based on a smaller level of postal code areas, which might affect significance levels of the observed correlations. The results are summarized in Table 4. It should be stressed that in this exploratory research it can be as interesting to simply study strength and direction of the correlation coefficients rather than just focusing on the significant levels.

The ecological correlations between social trust and the selected structural characteristics are without exception negative, but not statistically significant in each case. The strongest negative correlations can be found between social trust and population density, both in the Antwerp study (-.43) and in the Ghent study (-.74). Other significant correlations can be observed between social trust and unemployment rate in the Antwerp study (-.35) and between social trust and single-person households in the Ghent study (-.60). Some ecological characteristics (single-person households at the neighbourhood cluster level and unemployment rate at the postal code area level) do not correlate significantly with social trust. This finding deserves attention, but at present it cannot be said whether this is a consequence of validity problems of these scales measured through an expert survey of key informants. Furthermore, all ecological correlations between disorder and the structural

characteristics are strong to very strong (and statistically significant). Unemployment rate shows the highest correlation with disorder both in the Antwerp study (.66) and in the Ghent study (.90). Population density and single-person households also correlate strongly with disorder in the Antwerp study (respectively .48 and .42), as well as in the Ghent study (respectively .78 and .80). Taken together we can be positive about the convergent validity of the scales measured through key informants' perceptions.

TABLE 4

Conclusion and discussion

Within the framework of community research, progress has been made in measuring community (dis)organizational processes, but too often researchers need to rely on surveys of area inhabitants. The accuracy of inhabitants' responses is open to question. We argue that key informants as "professional experts" can fill in a gap when measuring processes in local areas. The results of these two studies, conducted in different urban settings, demonstrate that key informants can provide sufficiently high quality data that represent community (dis)organizational processes, if these informants are carefully chosen. Under the condition of a careful selection of key informants it seems highly plausible that insight can be gained in social phenomena that are not measured or only very selectively measured by the use of official data. It is surprising that key informants have not been used more often in quantitative community studies of social trust and disorder. We hope that we have brought this method to the attention of scholars.

The utility of key informant data is not restricted to community studies of residential areas. We argue that key informants can play an important role in research on social processes in areas that are hardly inhabited, such as inner-city areas, harbour areas, recreational areas, etc. Such areas are important in the geographical study of crime. Just because such areas are not residential in nature, it does not mean that no social processes are unfolding there. Social processes in such areas are not made up by residents, but by visitors and other users of the public space. Key informants such as community employees, constables and social workers have knowledge on what is going on in such areas.

The method proposed in this article is not free of criticism. The analysis of both the ecological reliability and validity suggests that ecologically reliable measures can be obtained

with respect to both organizational processes (social trust) and disorganizational processes (disorder) by using key informants. Congruent with previous studies social trust is measured less reliably than disorder. When creating sociological properties of communities by aggregating data, measurement error can be expected to be larger with respect to social trust than disorder. This finding is not particular for key informants, but from our study we know that this problem remains when using key informants. Marshall (1996) previously demonstrated that even key informants sometimes provide inaccurate, or even non-existing information.

Diversity is of major importance when sampling key informants. Diversity protects against validity problems caused by one-dimensional views of key informants. This might be the case if a key informant survey exclusively relies on local police officers or social workers. It is important to include key informants of different ethnic groups to provide accurate information, especially in mixed areas. When measuring social disorder, it is also possible that some key informants' views are distorted by an emotional perception of such events. Some key informants might not be able to judge events objectively, unlike professionals such as social workers and police officers. It has already been demonstrated that students of social sciences and inhabitants do not share the same views on disorder, see Groenen and Goethals (2006). As a consequence, some key informants in the present study may have been influenced by subjective considerations. One weakness is that we were not able to control for this possible threat to validity. We assumed that by striving for diversity and self-selection this bias would be kept as low as possible. Future research that uses key informants might consider taking this issue into account.

In short, the technique has both advantages and disadvantages and the potential of the key informant technique probably depends on the information needed. Some community processes can be measured best by asking inhabitants, other processes can probably better be measured by asking field experts and professionals. However, the key informant technique needs some thorough evaluation before definitive statements can be made on its usefulness in community studies. A more detailed evaluation can be obtained when the same constructs are measured through sufficiently different methods. Campbell's (1955) multi-trait-multi-method approach can be used to evaluate the ecological reliability and validity of community measures of (dis)organizational processes (Marsh, 1989). Some examples of different methods used to capture social processes are systematic observation (Raudenbush and Sampson, 1999) and the so-called "lost letter technique" (Milgram, Mann and Harter, 1965; Simmons and Zumpf, 1983). The study of such ecological processes can benefit by further

cultivating the multi-method approach and by comparing results obtained through different methods. We can only encourage scholars to try novel methods to capture ecological processes. By precisely measuring sociological properties of areas (whether street blocks, neighbourhoods or postal code areas), one does not only contribute to the development of tools for social scientists, but one simultaneously contributes to our understanding of the impact of community processes on crime-related outcomes.

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Appendix A: technical information on the ecological reliability

Ecological reliability is measured through the lambda-parameter. This parameter can be estimated through the multilevel program HLM6 (Raudenbush, Bryk, Cheong and Congdon, 2004). Lambda should be interpreted as the ecological counterpart of Cronbach's alpha. The value of lambda should be around .80 for ecological reliable estimates. If so, it is safe to create an ecological measure by aggregating the individual level scores. Ecological reliability means that characteristics of areas are measured as properties of ecological units rather then as of individuals that are part of these settings. As a consequence, lambda indicates how reliable the aggregate score will be. However, lambda depends on the number of respondents. This article reports on the use of key informants at two levels of aggregation and we have used different numbers of key informants according to each level of aggregation. Therefore, we additionally report and discuss the intra-class correlation coefficients (ICC) as well, in particular because this study reports on the use of key informants to reliably estimate community social processes measured at different levels of aggregation. The intra-class correlation coefficient (ICC) is defined as the share of the between-group variance and the sum of between- and within-group variance and is independent of the number of observations. The intraclass correlation coefficients presented further are computed as follows: [variance at the aggregate level / (variance at the individual level + variance at the aggregate level)]*100. The ICC-value refers to the percentage of the individual level variance that can be attributed to the aggregate level variance (Snijders and Bosker, 1999).

Table 1: Descriptive characteristics of both units of analysis in the Ghent and Antwerp survey

	Minimum	Maximum	Mean
Ghent survey (2007) **Postal code area level**			
Number of key informants per area	20	37	29.96
Km²	2.53	75.50	22.98
Inhabitants	232	103,781	15,653.04
Antwerp survey (2004) **neighbourhood cluster level**			
Number of key informants per area	5	15	7.64
Km²	.31	8.43	1.98
Inhabitants	1,211	39,979	10,331.69

Table 2: Descriptive statistics of samples

	Ghent survey (2007) **Postal code area level** Number of units: 26 Total number of informants: 779		**Antwerp survey (2004)** **Neighbourhood cluster level** Number of units: 42 Total number of informants: 321	
Background characteristics	**Absolute counts**	**%**	**Absolute counts**	**%**
Professional background				
Local shops and catering industry	493	63.3	131	40.8
Social work and medical doctors offices	136	17.4	67	20.9
Local governance	102	13.1	73	22.7
Local police and private security	48	6.2	50	15.6
Total	*779*	*100*	*321*	*100*
Gender				
Male	354	45.4	174	54.2
Female	425	54.6	147	45.8
Total	*779*	*100*	*321*	*100*
Age				
18-25	53	6.8	20	6.2
26-35	133	17.1	77	24.0
36-45	248	31.8	108	33.6
46-60	274	35.2	95	29.6
60+	71	9.1	21	6.5
Total	*779*	*100*	*321*	*100*

Table 3: Reliability measures (lambda values and intraclass correlation coefficients (ICC's)) of constructs

	Social trust		Disorder	
	Antwerp census tract survey	Ghent postal code area survey	Antwerp census tract survey	Ghent postal code area survey
Lambda + (ecological reliability)	.50*	.80*	.81*	.94*
Intraclass Correlation Coefficient (ICC) ++	12.41%	12.34%	38.36%	34.35%

+ = empty random intercept models of informants nested within ecological areas
++ = intraclass correlation coefficient = [variance at the aggregate level / (variance at the individual level + variance at the aggregate level)]*100
* = $p < .05$

Table 4: Correlations between community structure and (dis)organizational processes

	Antwerp census tract survey		**Ghent postal code area survey**	
	Social Trust	Disorder	Social Trust	Disorder
Population density	-.428**	.483**	-.737***	.784***
Single-person households	-.184	.419**	-.595**	.795***
Unemployment rate	-.352*	.659***	-.230	.895***

$N_{antwerp}$ = 42 neighbourhood clusters and N_{ghent} = 26 postal code areas
*** p< .001 ** p< .01 * p< .05

Endnotes

[1] Postal codes or zip codes in Belgium refer to parts of a municipality that were considered as independent municipalities in Belgium before 1977.

[2] Ever since the publication of this influential contribution, attention towards the development of reliable and valid measures of community processes has increased in European studies (Wittebrood, 2000; Oberwittler, 2001, 2004; Pauwels, 2006).

[3] The interviews in the Ghent survey were conducted between October and November 2007 while the interviews in the Antwerp survey were conducted between October and November 2004. Under the supervison of the authors, 153 and 236 criminology-students from Ghent University interviewed the key informants within the framework of methodology classes. Students were given interview instructions and information on the goals of the assignment.

[4] In the Ghent survey (postal code areas) social trust was measured identical to the measure in the work of Sampson et al. (1997).

[5] For each scale, additional factor analyses were conducted as an extra control of the reliability at the respondent level. The factor loadings were satisfactory for all the items in the social trust scale and the disorder scale.

[6] These administrative statistics were obtained through the data service of the City of Ghent, the database of the Province of East-Flanders, the data service of the City of Antwerp (Knowledge Center City Observation) and the study service of the Flemish Government.